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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/762,805	02/13/2001	Peter G R Smith	124-838	9678

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EXAMINER

ZARROLI, MICHAEL C

ART UNIT	PAPER NUMBER
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2839

DATE MAILED: 02/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/762,805

Applicant(s)

SMITH ET AL.

Examiner

Michael C. Zarroli

Art Unit

2839

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

- ✓1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A (1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the examiner on form PTO-892 has cited the references, they have not been considered.

Specification

- ✓2. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.
- ✓3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
- ✓4. The disclosure is objected to because of the following informalities: Section headings are missing per U.S. practice.

Appropriate correction is required.

5. The disclosure is objected to because of the following informalities: The numbering of the pages is not per U.S. practice. Appropriate correction is required.

Claim Objections

✓6. Claim 6 is objected to because of the following informality: The made up term "indiffusion" is unnecessary. Why not just say --diffusion--? Appropriate correction is required.

✓7. Claim 8 is objected to because of the following informality: The reference number "(160)" is used to identify the "light guiding path" when the specification on page 9 line 25 defines the "waveguide core" as 160. Appropriate correction is required.

✓8. Claim 11 is objected to because of the following informalities: Please paragraph or indent better the steps of this claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

10. Claims 1-10 and, 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention:

✓ In claim 1 the phrase “modified optical properties” is very vague. The examiner does not know what these properties are or how they are modified. The examiner will interpret these optical properties to be anything that defines “a light guide path.”

✓ The examiner does not understand claim 5 because of the phrase “spatially periodical electrically poled regions.” Please point out to the examiner where this phrase is discussed in the disclosure? The examiner will interpret this claim to mean that there are intermittent electrically poled regions.

✓ Claim 10 is not understood because of the phrase, “to reduce components at the wavelength.” The examiner does not understand how components (?) are reduced at a wavelength. The examiner will interpret this claim to mean that there is an output filter for the waveguide emerging light.

✓ Claim 12 is indefinite because there is an antecedent problem with “modify regions.” Are these regions the same ones (130, 150) that are recited in claim 11? The examiner will interpret this claim as such.

Claim Rejections - 35 USC § 103

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1 and, 6-7 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al in view of applicant admitted known technique.

Payne discloses an optical waveguide (title) with a guiding lamina (210) of optical material bonded to a superstructure lamina (220) of optical material. The guiding lamina has "modified optical properties" (col. 8 lines 18-22) that define a light guiding path (230) along the guiding lamina. Payne also discloses that this waveguide has a second superstructure lamina (200) bonded to the guiding lamina (fig. 5).

Payne does not disclose that this bonding is direct interfacial bonding. The applicant states that direct interfacial bonding is a "known technique" (specification page 1 lines 4-5).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the known technique of direct interfacial bonding to bond the superstructure lamina and guiding lamina of Payne together. The motivation for doing so would have been to save manufacturing costs by using a tried and true method.

Regarding claim 6 Payne discloses that the modified regions of the waveguide are formed by the diffusion of one or more dopant materials into the guiding lamina (claim 1 last 2 lines).

Regarding claim 7 Payne discloses that at least part of the modified regions form the light guiding path (fig. 5).

14. Claims 2-5 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al in view of applicant admitted "known technique" as applied to claims 1 and 6-7 above, and further in view of Deacon et al.

The teachings of Payne as modified by the "known technique" have been discussed above.

Payne does not disclose that the guiding lamina is formed from lithium niobate and that the modified regions are electrically poled.

Deacon discloses a lamina (20) formed of the ferroelectric material lithium niobate (col. 9 lines 5-6). Deacon also discloses that the modified regions are electrically poled regions of the guiding lamina (figures with arrows (41) e.g. fig. 2).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to form the guiding lamina of Payne out of lithium

niobate as done by Deacon. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

In addition, at the time the invention was made, it would also have been obvious to a person of ordinary skill in the art to make the guiding lamina of Payne have electrically poled regions as done by Deacon. The motivation for doing so would have been to make grating structures, which are well known in this art, and shown in Deacon (figures) and discussed in Payne (col. 2 lines 45+).

15. Claims 9-10 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al in view of applicant admitted "known technique" as applied to claims 1 and 6-7 above, and further in view of Winston et al.

The teachings of Payne as modified by the "known technique" have been discussed above.

Payne does not disclose a means for launching an input optical signal to the waveguide nor an output filter.

Winston discloses a means (236) for launching an input optical signal into a waveguide and an output filter (216) from the waveguide.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add an input means and output filter like Winston's to the waveguide arrangement of Payne. The suggestion for adding the optical signal input means would obviously be that the device of Payne would not work without an input. The motivation for adding the filter would be to refract the light coming from the waveguide of Payne in order to change its characteristics.

Allowable Subject Matter

16. Claim 8 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

17. Claim 11 is allowed over prior art.

18. Claim 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter: The light-guiding path is the part of the light guiding lamina that is not modified ("unadulterated" page 10 line 2). The modified regions of this lamina define this non-modified light path.

Conclusion

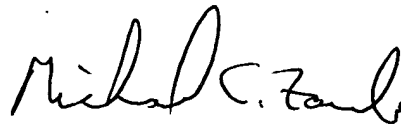
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Zarroli whose telephone number is 703-305-0608. The examiner can normally be reached on 7:30 to 3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 703-308-3119. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

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Michael C. Zarroli
Examiner
Art Unit 2839

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February 20, 2002